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Claims

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1. Assay method for studying the effect of at least one compound on RNA virus entry, RNA replication, transcription or encapsidation, the method comprising the steps of:

- (a) providing an RNA molecule containing (i) at least a portion of the genome of an RNA virus of interest, (ii) a copy of a reporter gene flanked by viral regulatory sequences to direct RNA synthesis by a viral RNA polymerase and (iii) one or more sequences of RNA encoding packaging signals, the RNA molecule being packaged within a virus-like particle;
- (b) incubating a cell containing the RNA molecule with the or each compound, the cell being capable of causing the replication of the RNA molecule; and
 - (c) detecting the presence of any reporter gene product.
- 2. Assay method according to claim 1, wherein the RNA virus is a negative strand RNA virus.
- 3. Assay method according to claim 1, wherein the RNA molecule is produced by (i) introducing an RNA molecule encoding (1) at least a portion of the genome of an RNA virus of interest, (2) a copy of a reporter gene flanked by viral regulatory sequences to direct RNA synthesis by the viral RNA polymerase and (3) one or more sequences of RNA encoding packaging signals, into a cell infected with the cognate virus; or (ii) introducing a plasmid capable of directing the synthesis of the RNA molecule into a cell infected with the cognate virus and containing the components required to enable the plasmid to direct synthesis of the RNA; or (iii) introducing a plasmid capable of directing the synthesis of the RNA molecule containing the genes necessary for virus replication and packaging into a cell containing the components required to enable the plasmid to direct synthesis of the RNA and containing the components required for viral replication and transcription.
- 4. Assay method according to claim 3, wherein the RNA molecule defined in step (i) is either negative-sense or positive-sense RNA.

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5. Assay method according to any one of claims 1 to 4, wherein the reporter gene is a heterologous reporter gene.

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- 6. Assay method according to any preceding claim, wherein the RNA molecule is incapable of independent replication and the cell in step b contains components necessary for replication and packaging of the RNA molecule.
- 7. Assay method according to any preceding claim, wherein the RNA molecule may or may not lack one or more genes encoded by the native genome of the negative-strand RNA virus.
- 8. Assay method according to any preceding claim, wherein the negative-strand RNA virus is a paramyxovirus.
- 9. Assay method according to claim 8, wherein the negative-strand RNA virus is human respiratory syncytial virus (RSV), or avian pneumovirus (APV).
- 10. Assay method according to any preceding claim, wherein the reporter gene is chloramphenical acetyltransferase (CAT), luciferase, green fluorescent protein (GFP), β-galactosidase, or secreted alkaline phosphatase.
- 11. An antiviral or a proviral compound identified by use of an assay method according to any preceding claim.
- 12. A kit for use in an assay method according to any preceding claim comprising an RNA molecule packaged into an infectious virus particle and encoding (i) at least a portion of the genome of an RNA virus, (ii) a copy of a reporter gene and (iii) one or more sequences of RNA encoding packaging signals.
- 13. A kit according to claim 12, wherein the RNA virus is a negative-strand RNA virus.

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- 14. A kit according to claim 13, wherein the RNA virus is RSV or APV.
- 15. A kit according to claim 12, claim 13 or claim 14, additionally comprising instructions for carrying out the assay method according to any one of claims 1 to 10.